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MAINTENANCE OF THE FUR SUPPLY

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UNITED STATES DEPARTMENT OF AGRICULTURE
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Contribution from the Bureau of Biological Survey
E. W. NELSON, Chief

C.

Washington, D. C.

November, 1920

UNLESS fur-bearing animals are rigidly conserved the time is not far away when many of the more valuable species will be exterminated and furs will be worn only by the very rich. This fact is recognized by the fur trade generally and by individuals who have made a study of the subject.

Maintenance of the fur supply involves the protection of the available stock, especially when the pelts are not prime, and the production of the animals under controlled conditions.

Fur animals should have legal protection by the enactment of uniform legislation in States having similar climatic conditions and by the strict enforcement of laws when passed.

A greatly increased production can be made possible only by domesticating the animals, just as live stock are now raised; and by establishing preserves for them where they may be safe from molestation. Protected areas stocked with the best fur animals that can be found will become centers from which choice breeding stock can be obtained for establishing other preserves and for private use.

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MAINTENANCE OF THE FUR SUPPLY.¹

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TO DIRECT ATTENTION to the great commercial importance of fur; to emphasize the need of maintaining the supply, which lately has been declining at an alarming rate; and to point out ways by which this supply may not only be maintained as to quantity but improved as to quality, is the purpose of this circular.

The subject is discussed from the viewpoint of the farmer, to whom fur-bearing animals, if rightly managed, will be a source of interest and profit. The farmer should know that peltries are prime only about two months in the year, and that it is as unwise to take them when unprime as it is to harvest unripe or overripe fruit. He should know, also, that while foxes, skunks, minks, and several other small fur bearers are carnivorous, very few of them ever taste the flesh of poultry; the farmer who kills these animals at every opportunity will, if consistent, kill his poultry whenever a few hens raid his garden. Among fur animals, as among men, the proportion of criminals is relatively small.

The unprecedented prices lately paid for peltries make this an opportune time to urge a reasonable and practical attitude toward fur bearers on the part of the farmer, who actually controls the animals living on his property, although he is subject to the same laws as are other people, so far as capturing them is concerned. When once he accepts the fact that fur animals are worth tolerating—for he has neither to feed nor shelter them—he will take steps to secure a dependable harvest of fur every year. He will not permit poaching on his property and he will himself hold sacred the dens of the fur bearers. A hollow sycamore or oak, of no value for lumber and scarcely worth felling for firewood, may keep him

¹ Read before the second annual stated meeting of the American Society of Mammalogists, New York City, May 4, 1920.

in raccoon-skin overcoats. The returns from a fox den may easily be worth more to him than the income from a thousand-dollar Government bond.

THE FUR TRADE.

The commercial history of America begins with fur, and from the early days down to the present this has been an important article in our domestic and foreign trade. There are few commodities in common use which distribute their benefits so widely. From the country boy who traps a few muskrats to the professional trapper patrolling a hundred miles of territory, the money received for pelts goes at once into various channels of circulation.

For upward of 300 years America furnished raw furs that were dressed and manufactured in Europe, many of them to be returned to this country for final use. Since 1914, however, the center of the world's fur trade has been transferred from Europe to the United States. The greatest fur sales in history are now being held here, and all branches of fur dressing, dyeing, and manufacturing are being successfully carried on by American enterprise. The amount of capital invested in the American fur trade is vastly greater than ever before, and many thousands of people derive their support from it. To both capital and labor it yields abundant returns.

Most of the fur goods produced in America are manufactured in or near New York City, where in 1918 there were about 60 dressing and dyeing plants, 500 dealers, 1,200 manufacturers, 18,000 operatives, and an investment estimated at between \$200,000,000 and \$300,000,000.

The effect of the World War on fur dressing and dyeing in this country is clearly shown by the change in ratios between the dressed and raw skins imported in 1914 and 1919, respectively. (See Pls. I and II.) In 1914 dressed skins imported were worth \$3,500,000, while raw-skin imports were worth \$7,500,000, the ratio of dressed to raw being about 46 per cent. In 1919 we imported \$4,000,000 worth of dressed skins and \$69,000,000 worth of raw skins, the ratio between dressed and raw dropping to 6 per cent from the 46 per cent of five years earlier. Members of the Fur Dealers' & Buyers' Association of Greater New York in 1919 dressed \$27,000,000 worth of furs and dyed more than \$16,000,000 worth. It may be safely assumed that from this time forth America can readily dress, dye, and manufacture all the furs she can possibly produce.

The most striking fact relating to the fur trade during recent years is the rapidity with which values have advanced and the surprising heights they have attained. For many months it seemed as if the pinnacle had been reached, yet each succeeding sale set a new record. Not only did prices advance, but skins formerly re-

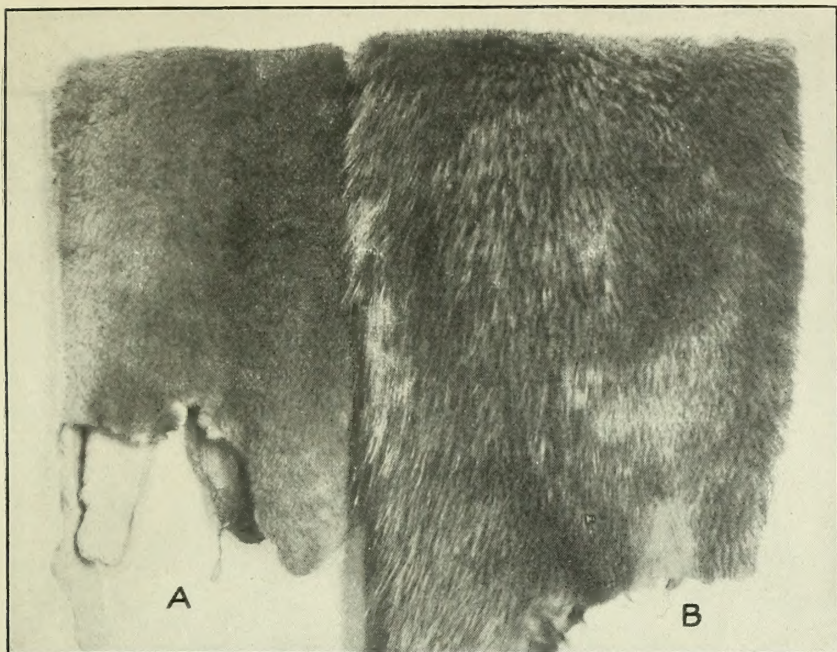


FIG. 1.—BEAVER SKINS.

B1417M

A, Plucked, as the skin comes from the hands of the fur dresser; *B*, Unplucked, as the skin dresser receives it.

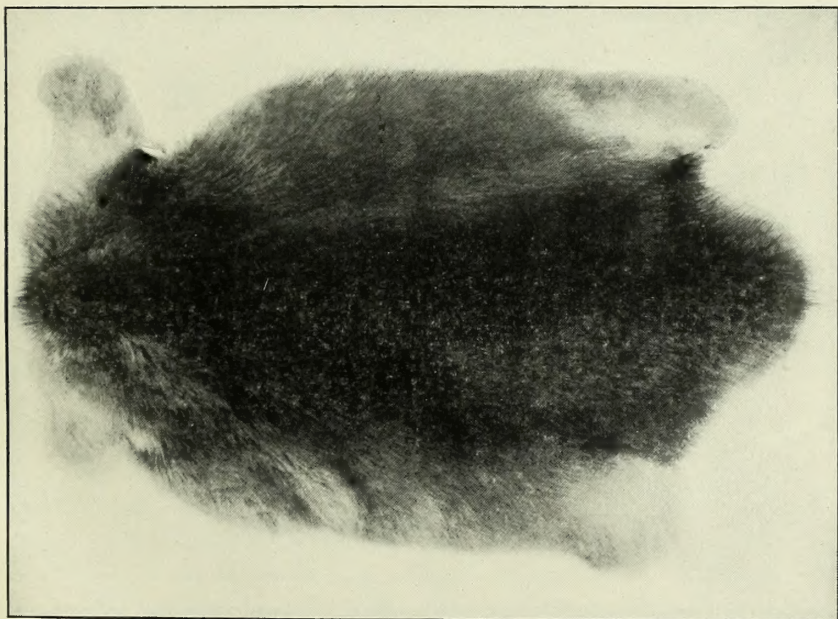
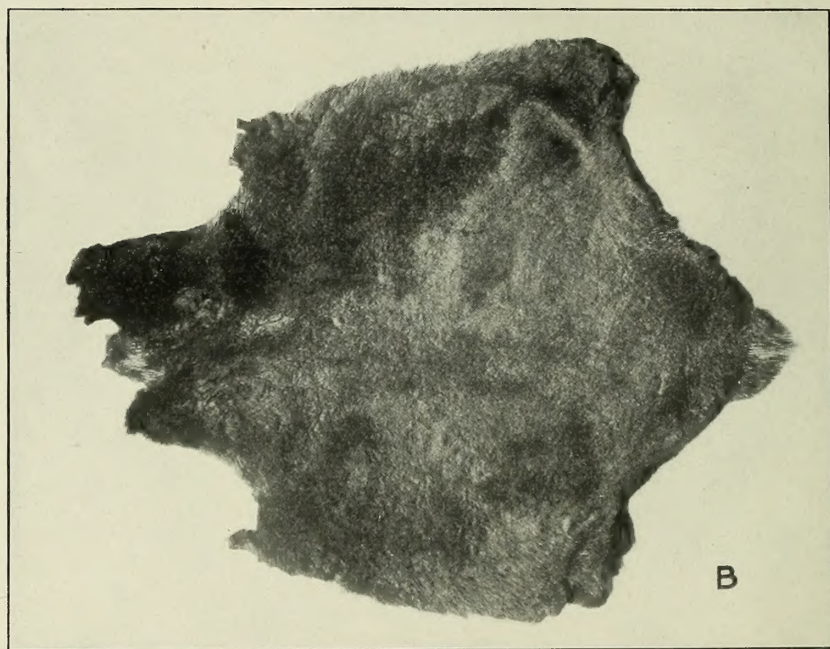
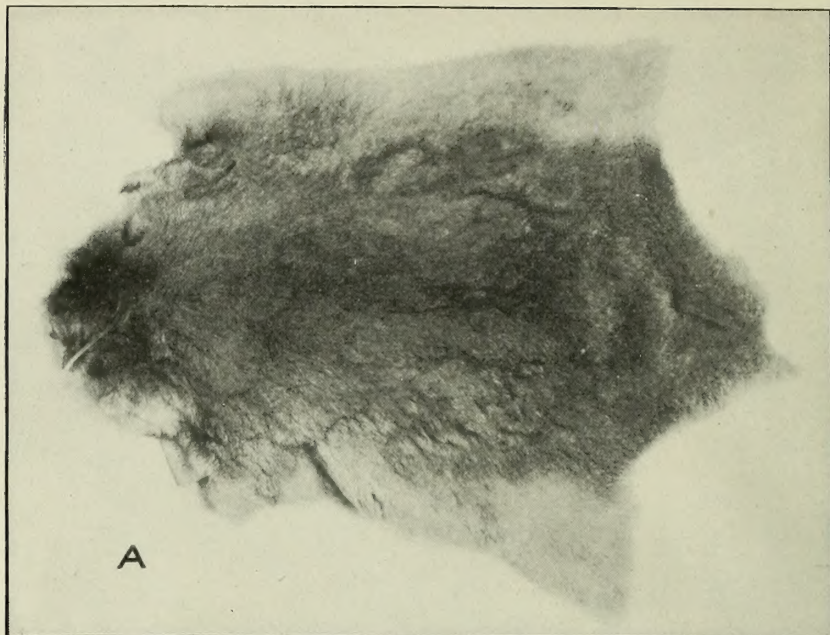


FIG. 2.—DRESSED MUSKRAT SKIN.

B1429M

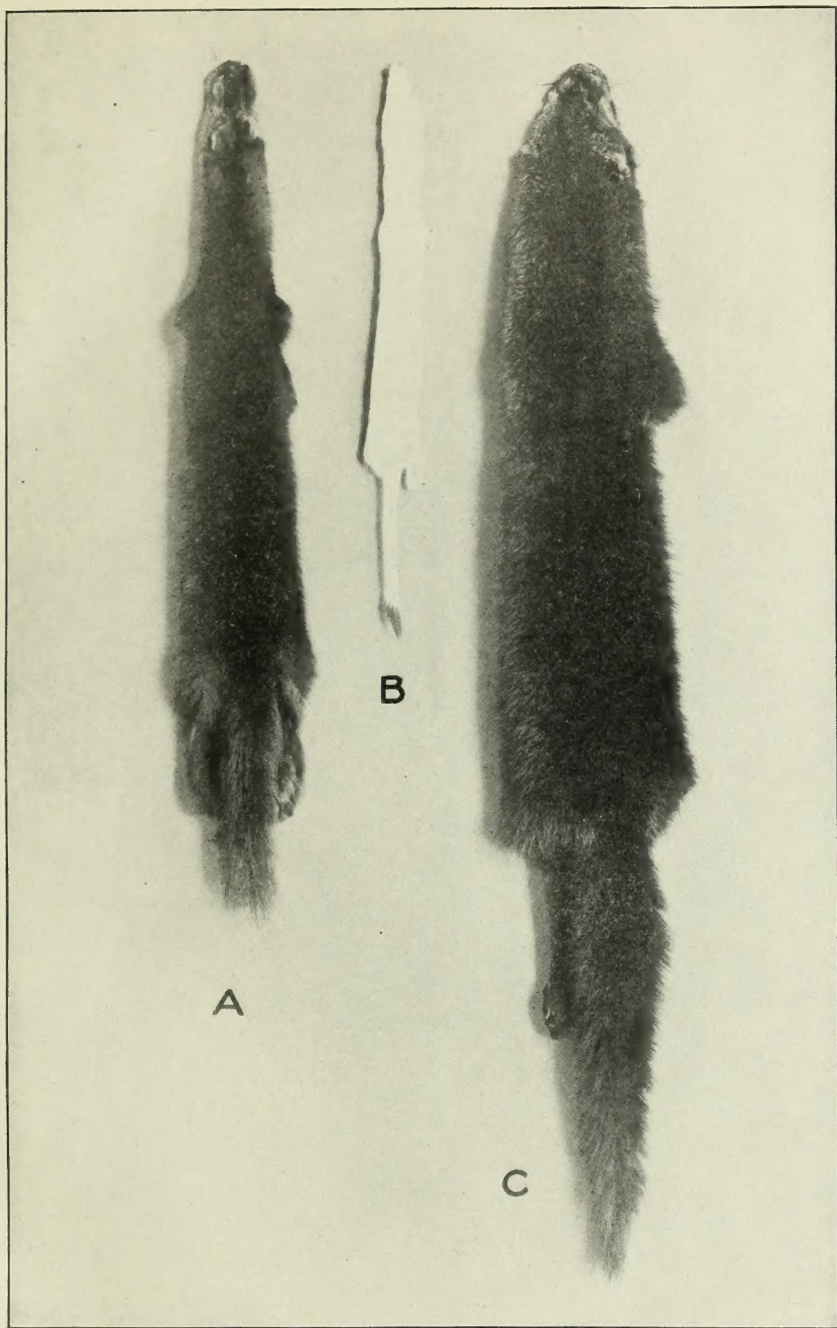
This skin is in the natural state. Plucked and clipped skins are shown in Plate II.



DRESSED MUSKRAT SKINS.

B1424M; B1425M

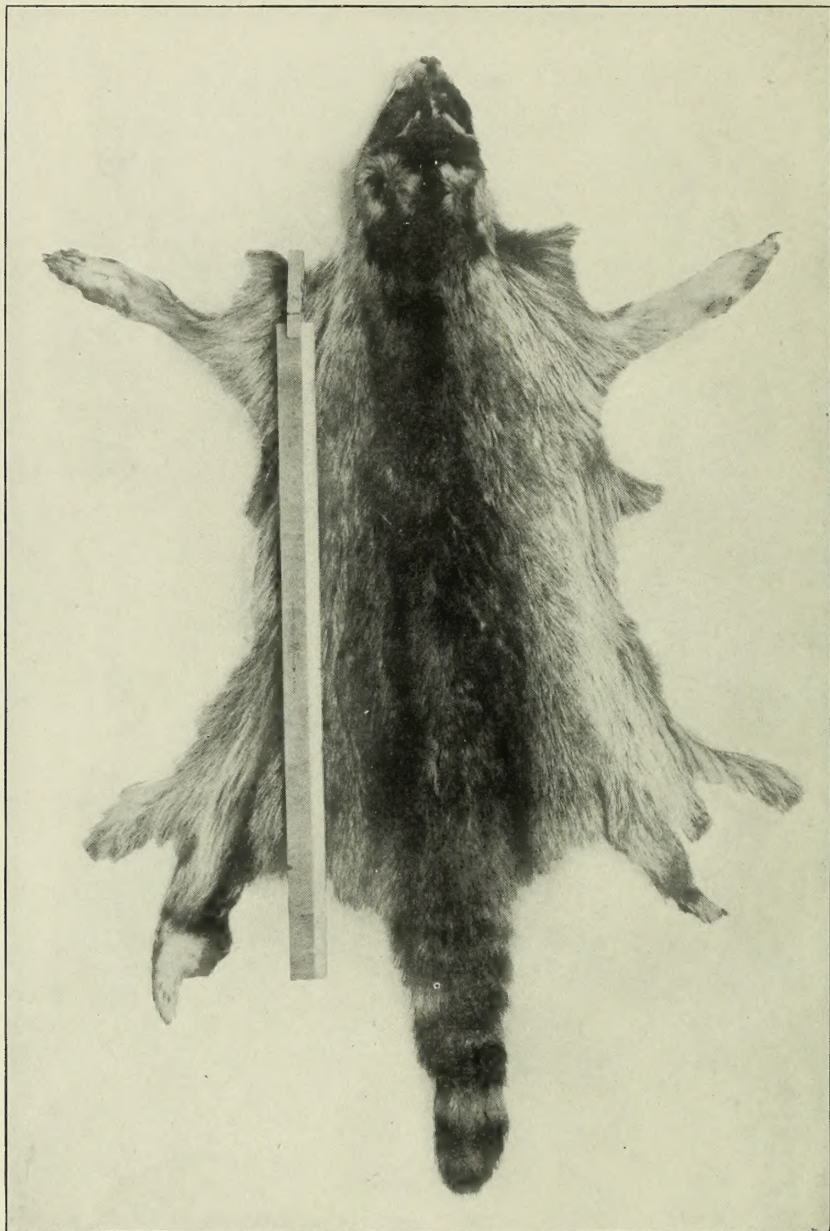
A, With guard hairs plucked out; *B*, With guard hairs plucked and the underfur clipped and dyed, in which condition it is known as "Hudson seal."



THREE VALUABLE FURS.

B1422M

A, Marten; *B*, weasel, or "ermine"; *C*, fisher. Martens and fishers are no longer common in any part of the United States, and in 1920 their skins sold, respectively, at \$201 and \$365 each, whereas five years earlier they sold at \$15.20 and \$25.50, respectively.



RACCOON SKIN.

B1420M

Taken in southeastern Wyoming. The 2-foot rule shows the size of the pelt.

garded as having little or no value as fur became popular under various trade names. A comparison of the highest prices at the October sales in St. Louis in 1915 with those in 1919 illustrates the remarkable increase in fur values: Beaver advanced in these four years from \$17 to \$38.50, otter from \$14 to \$101, muskrat from \$0.36½ to \$5.10, red fox from \$15.20 to \$64, fisher from \$25.50 to \$205, skunk from \$3.36 to \$10.60, and marten from \$15.20 to \$145. (See Pls. III and IV.)

The crest of the rising wave of fur values was reached in the auction sales of February and March, 1920, when the following were the highest prices paid: Weasel, \$4.10; muskrat, \$7.50; skunk, \$12.25; raccoon, \$30; lynx, \$66; red fox, \$71; mink, \$75; otter, \$105; marten, \$201; and fisher, \$365. These inflated values, which involved an enormous amount of money for financing the fur industry, coming at a time when banks were showing an inclination to withhold credit, reacted on prices and caused a decline of about 25 per cent in the May sales of 1920, although they still averaged higher than in the spring of 1919. Fur continues to be fashionable, however, and while prices may decline somewhat, they probably will be prevented from going very low by the continued demand for fur and the reduced numbers of fur-bearing animals.

A concrete example of the rise in fur prices is afforded by the actual record of one man's fur-lined overcoat. This coat, lined with mink, in 1913 cost \$500. After wearing the coat two years the owner sold the mink lining for \$1,000 and replaced it with nutria at a cost of \$150. Two years later, in 1917, he had the nutria lining removed and sold it for \$250. A muskrat lining was then put in the coat at a cost of \$55, which, in 1919, was in turn removed and sold for \$300. The original purchaser still has the shell.

Although fur garments bring what seem exorbitant prices, the trapper regards present fur values with the utmost complacency. A fur buyer in Illinois recently told of two boys near Ottawa who trapped along the Illinois River during the winter of 1919-20 and sold \$1,000 worth of skunk, muskrat, and mink skins, and further stated that many other boys around the country did quite as well. Alaskan trappers, in 1918, sold furs valued at \$1,363,600.

Fur animals are profitable to the Government as well as to individuals. The sealskins taken on the Pribilof Islands by the Bureau of Fisheries in 1919, to the number of 27,821, were worth to the Government nearly \$4,000,000. From these same islands the Government harvested 938 blue foxes in 1919, the pelts having a value of \$165,000. The skins of bears, bobcats, coyotes, mountain lions, and timber wolves killed by predatory animal hunters of the Biological Survey in 1918 and 1919 brought nearly \$160,000, and since these operations began, in 1915, \$234,762 has been turned into the Treasury

from this source. (See Pl. V.) In California the asset value of wild fur bearers to the people of the State has been estimated at \$7,125,000, as the annual catch of fur in the State brings about 4 per cent of this huge sum. By proper conservation it might readily be doubled.

Although America still produces a large quantity of fur, about half the skins disposed of at American auction sales are of foreign origin. The total value of furs imported into the United States in 1919 was more than \$76,000,000. Our foreign trade in this industry is of no little importance, as fur is one of the few commodities that Europe can sell us. It is estimated that the money spent in America yearly for fur garments is well over \$100,000,000. The gross trade of fur merchants in New York alone during 1919, including exports, imports, and domestic trade in raw and manufactured furs, amounted to upwards of \$375,000,000.

SUPPLY OF FURS WANING.

The traffic in fur is so extensive and profitable that fur dealers are taking definite steps to keep up the demand for it. The management of the largest auction fur sales company in America planned to spend \$100,000 during the year 1920 in a campaign designed to persuade people to wear fur at all seasons of the year. A prominent advertising agency was awarded the contract to direct this campaign through some of the most popular and widely circulated magazines in the United States.

This movement to stimulate fur sales will inevitably tend to intensify the pressure on fur-bearing animals, which have been gradually decreasing in numbers as a result of excessive trapping, clearing of forests, and draining of marshes. Already beavers and martens, two very important fur bearers, have been exterminated over a large part of the country. Even in Alaska, the last stronghold of fur bearers on United States territory, these animals became so scarce that complete protection for them for a term of years was advocated by Alaskan trappers. As a result of their express request a close period was declared and is still in force.

High prices of furs are equivalent to large bounties or rewards for killing fur animals, and unless steps to counterbalance them are taken immediately we may look to see these animals practically exterminated in many places. Reports from raw-fur buyers indicate that fur animals have decreased greatly during the last decade, several of the estimates running as high as 50 per cent. From some of the best fur regions in Canada come reports to the effect that fur animals are extremely scarce. A raw-fur buyer in Boston, speaking of muskrats, states that the supply in the winter of 1918-19 was 50 per cent short of normal and that of the following winter was 50 per cent less again. In the State of Wisconsin, trappers in 1917 took

over 800,000 muskrats. in 1918 they took less than 300,000, and in 1919 only about 150,000. These decreases occurred in spite of the fact that there was an increase of 10 per cent each year over the previous year in the number of trappers' licenses sold. An Illinois writer in February, 1920, referring to the Kankakee River district, asserted that the fur-bearing animal supply could not possibly stand the amount of trapping induced by current prices for fur, and that if the present condition should continue for a few years the supply in settled districts would come to an end.

PROTECTIVE LAWS FOR FUR ANIMALS.

There is a loss of one-fourth of the full value of furs because so many of them come to market unprime. It is generally agreed that killing fur animals in the breeding season and before family groups break up and disperse in fall is a wasteful practice. In considering ways for preventing such waste the first course that has suggested itself is to invoke the aid of appropriate laws. Forty States have enactments establishing close seasons for fur bearers and 16 States have given rare and valuable animals, as the beaver, otter, and marten, the benefit of a close period covering five years or more. Inasmuch as comparatively few of the unprime skins coming to market come from the eight States without close seasons, it is evident that in some States at least the laws protecting fur animals are either ineffective or inadequate.

In many States the open season for trapping is too long. It should not cover more than two months. The open season for beavers and muskrats should not begin earlier than January, as these animals prime late, while for the other fur bearers it should not begin earlier than November nor end later than January. Uniform laws throughout the United States prohibiting traffic in unprime skins of American fur animals, excepting wolves and wild cats, would be salutary. Such laws would apply especially to dealers and would be welcomed by many of them; they are not only well aware of the need for more and better fur, but have under consideration the propriety of refusing to handle skins that are evidently taken out of season. The attitude of intelligent fur dealers toward trapping out of season is well illustrated by a full-page advertisement in a magazine devoted to rural interests, paid for by a prominent fur house, and entirely devoted to arguments for the capture of fur animals only when their skins are prime and for obeying laws protecting them. Proprietors and managers of large fur houses stand ready to support any reasonable movement to keep up the fur supply.

In several States the law provides that trappers must buy licenses in order to support a warden system for the enforcement of laws protecting fur animals. In a few States trappers are also required

to report how many animals of each kind are taken. It would be well for every State to require such reports, as this is a convenient way of obtaining the statistics which are necessary to inspire people with a desire and a determination to make fur a regular and valuable farm and forest crop.

RESULTS OF PROTECTION.

Wild creatures quickly learn where they are safe from molestation, and in such places their fear of man disappears in a surprisingly short time. (See Pl. VI, B.) Wild waterfowl in city parks throng around visitors who feed them as if they were domesticated. The fact that animals very quickly learn to appreciate a sanctuary was forcefully brought out a few years ago at Buffalo Park, near Wainwright, Canada, when a protest was made by residents in the vicinity that the park was recognized as a haven of refuge by coyotes. When the farmers started to hunt them, all the coyotes made a bee-line for the park, where they evidently knew they were safe. Wardens who patrol Jasper Park and the adjacent country in northern Alberta report that as soon as the hunting season arrives all the wild animals take refuge in the park.

A close period for beavers for several years past has virtually made a temporary preserve of an entire Province, so far as beavers are concerned. During the first open season the farmers there will probably harvest about 15,000 beaver pelts. Now, instead of having a catch of 15,000 the first year, a catch of 7,000 the second year, a catch of 3,000 the third year, and then another closed period for perhaps 10 years, suitable areas might be set aside where beavers and other fur bearers would be continually protected and from which would come an overflow that would furnish a reasonable supply of skins every year continuously. (See Pl. VI, A.)

A striking example of the benefits derived from setting aside a preserve for fur animals is to be found in Laurentides Park, in the Province of Quebec, where many people, in the habit of hunting in that region before the park was formed, found it very hard to keep out after it was set aside as a sanctuary. Finally, however, they held a conference and found on comparing notes that while they no longer entered the park they were handling three times as much fur as when they were admitted to it.

FUR FARMING.

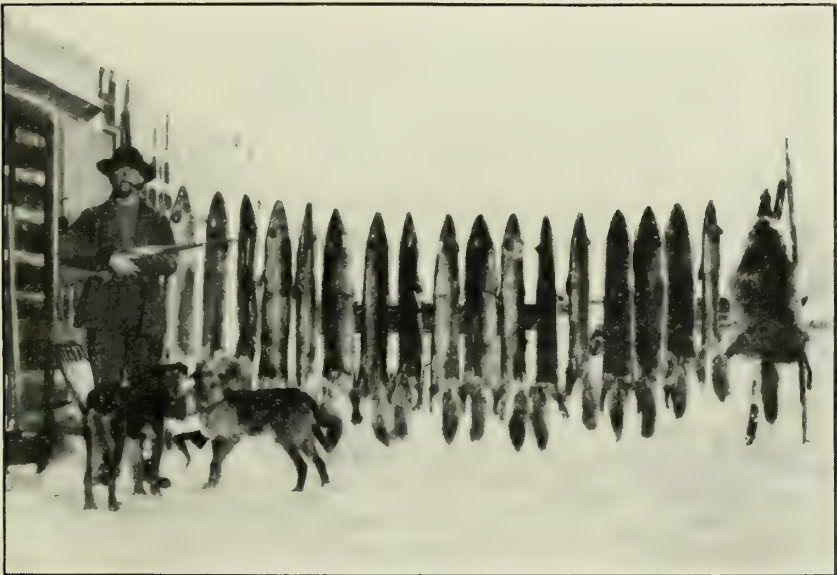
The first landowners to appreciate the possibility of turning into ready cash the furs produced annually on their land were those in possession of marshes inhabited by muskrats. One of the most progressive of the muskrat farmers counts the muskrat houses on his marsh in fall and then decides how many animals may be safely



B1334M

FIG. 1.—OTTERS.

Photograph taken in National Zoological Park, Washington, D. C. Otter skins have advanced in price from \$14 to \$101 during the years of the war, and the crest seems to have been reached in 1920, when the highest price paid was \$105. This is about half the price then paid for marten, and less than a third the price paid for fisher.



B1427M

FIG. 2.—SKINS OF PREDATORY ANIMALS.

The February catch of a hunter of the Biological Survey in Montana. Most of the skins are of coyotes, the animals having been killed by poisoning operations, a measure necessary to protect live stock from their depredations. The skins are sold and the proceeds turned into the Treasury of the United States.



B13094

FIG. 1.—BEAVER PASTURE.

Timber felled by the animals for constructing their dam. This may be seen in the middle foreground. View taken near Cascade, Colorado, in 1910.



B867M

FIG. 2.—BLACK BEARS FEEDING.

These usually timorous animals search through the refuse in a canyon of the Yellowstone National Park without fear, as they have learned that there they are safe from molestation.

captured and how many will probably be left for breeding stock. Marsh owners in Dorchester County, Md., harvest on the average from 100,000 to 125,000 muskrat skins a year. There is a market for the meat as well as for the fur. A single Baltimore firm handles from 25,000 to 30,000 muskrat carcasses each season and is unable to supply the demand at that. The best hotel in a Maryland town of a population of about 9,000 offers a choice on its bill of fare between muskrat meat, under the name of marsh rabbit, and roast beef. The price of muskrat carcasses as sold by trappers in the spring of 1920 ran from 25 cents each early in the season to 10 cents each near the close. Incidentally, these marshes, which formerly were considered to be practically of no value, now bring from \$30 to \$40 per acre.

Experiments in propagating fur animals in confinement have been tried with varying results. The World War interrupted them, but now the young men who carried them on are back on their farms again and have resumed their efforts. The Department of Agriculture has been experimenting along this line for several years. It has been demonstrated that silver foxes, blue foxes, skunks, and muskrats can be farmed profitably under suitable conditions.

For skunk farming it is necessary to have a reliable source of cheap food, as the value of skunk pelts is not sufficient to justify much outlay. In the case of foxes, the margin of profit makes it unnecessary to consider the cost of food. Minks have been bred in confinement, but they are not hardy and can not be handled successfully unless there is a reliable supply of fresh meat and fresh fish constantly at hand. (See Pl. VII, A.) Martens and fishers are hardy in captivity but can rarely be induced to breed. None of the other fur bearers have been tested enough to show whether they may be propagated in confinement. There is no doubt, however, that skins from domesticated fur bearers will continue to be used in increasing quantities, and that ultimately furriers must rely largely on them for the support of their trade.

LOCAL ATTACHMENTS OF ANIMALS.

Each wild animal has a special range on which it lives and to which it becomes attached by association. In the same way an animal that is well provided for in confinement soon becomes contented and attached to its surroundings. Minks that have been in captivity for a few months have been known to return to their dens voluntarily after having escaped. Martens seem to do this invariably; at least numerous instances have been recorded in which they have returned to their cages and been recaptured.

A muskrat that had been kept in a cage for several months at the National Zoological Park, in Washington, was returned to its native waters in Rock Creek when cold weather came on, as it was not thought worth while to keep it through the winter. The morning

after its liberation it was found back again on the hill near its cage, and it remained in the vicinity until finally it fell into a post hole and died.

A red fox that had been kept on a ranch with cross and silver foxes was turned loose, as its owner did not wish either to feed or to kill it. The guard fence surrounding this ranch consisted of a high board fence, the owner of the ranch living in a cabin within the stockade. Every morning, almost invariably, when the stockade door was opened the red fox was waiting to come in and visit its former comrades. After a little while it began to dig a den near the highest corner of the yard and spent about half an hour each day at work upon it. Apparently this fox came back from pure love of locality, as it received no feed at the ranch after its liberation, and after spending about an hour at the ranch each day it returned to the forest. Unfortunately for this fox its association with man led it to follow trails and rob Indian snares of rabbits, till finally its hide hung in an Indian wigwam.

FUR-ANIMAL PRESERVES.

The attachment shown by animals for their accustomed range, their appreciation of sanctuaries wherein they are safe, and the increase shown by fur bearers that are well protected indicate that it is practicable to select large tracts of land of a suitable character and make them permanent fur-animal preserves, where dens and feed will be provided and the animals will be retained merely by their rations and their local attachments. Such preserves would soon become centers of radiation from which would come a constant overflow of fur bearers. Private preserves may be used to obviate some of the difficulties in the way of farming certain fur animals in small yards, either because of their failure to breed freely in confinement—as martens and fishers—or because the value of their skins is not sufficient to pay returns on the cost of building yards and attending to their daily needs, in which latter category fall skunks, raccoons, and opossums. The Forest Service, ever alert to husband natural resources, has proposed that National Forests be administered as fur-animal preserves jointly by the Forest Service and the State game officials for the benefit of the State. It estimates that the National Forests of Colorado can be made to produce \$100,000 worth of fur annually and that the forests of Wyoming can be made to produce as much as those of Colorado simply by conserving the wild animals already there. The report in which this suggestion was made incidentally brought out the fact that beavers are useful in storing water, which keeps the trout streams running during the dry season. In one instance cited, when the irrigation reservoirs had all been drained during a protracted drought and crops were drying up, beaver dams were opened on four different creeks in the mountains,



FIG. 1.—FEEDING MINKS.

View taken on the Biological Survey Experimental Fur Farm in the Adirondacks. This illustrates the fact that wild fur bearers under domestication may be as friendly with their keepers as are the other live stock of the farm.

B1421M

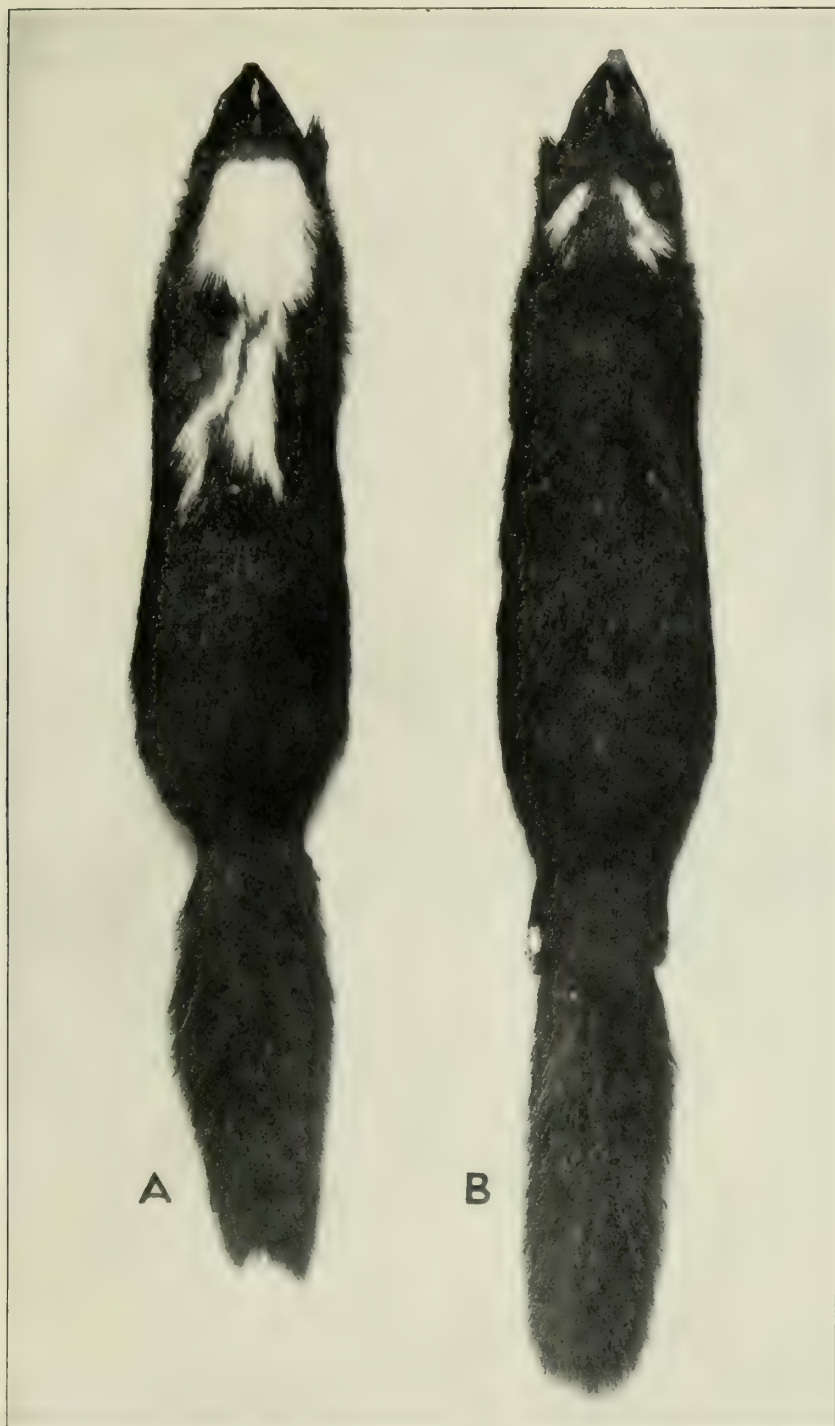


B1426M

FIG. 2.—MINK SKINS.

A, From Northwestern Alaska, pale, coarse haired, and very large; *B*, from Labrador, dark, fine haired, and comparatively small. Mink skins from Labrador to Hudson Bay and southward to the Adirondack Mountains and Nova Scotia are the best in the world. The highest price paid for skins in 1920 was \$75.





SKUNK SKINS.

B361M; B362M

PLATE VIII: *A*, Fullstripe; *B*, narrow stripe. PLATE IX: *A*, Short stripe; *B*, black. The less white there is on a skin the more valuable it is.

and sufficient water was thus obtained to tide the crops over until the fall rains came.

The characters of North American mammals and their geographical distribution are now well known. It is known, for example, that the largest minks come from northwestern Alaska, while the best-furred minks are found from the Adirondacks to Nova Scotia and northward to Labrador (see Pl. VII, B) ; that the largest well-furred skunk is the northern plains animal, while the region in which the largest proportion of black, well-furred skunks are found extends from eastern Canada southward to Pennsylvania and northern Indiana ; and that the so-called black muskrats of the fur-sales catalogues come mainly from the marshes of Chesapeake Bay.

It is thus possible to stock preserves with animals of the very highest quality from the regions where such animals are found, or by culling out the poorer specimens in localities where more than one grade is found, as in the case of skunks. (See Pls. VIII and IX.) It has been estimated that a year's catch of skunks in New York State is worth \$1,000,000. Only one-fifth of them are black or short striped. If all were of this higher grade they would be worth \$3,000,000. Experiments in breeding skunks have shown that black parents regularly produce black offspring. A preserve stocked with black skunks would eventually double or treble the value of the catch of skunks in the territory surrounding it.

Furthermore, skunks are the best wild-animal friends the farmer has, and there ought to be at least three times as many of them as there now are. Almost any farmer might have two or three dozen skunks at work for him destroying mice, grasshoppers, crickets, and white grubs and furnishing him from \$50 to \$100 worth of fur a year, if he would but respect their dens, keep his poultry in skunk-proof yards, kill an old horse for them every fall, and be tactful when he meets them in the evening.

Federal, State, and private preserves might be stocked with fur-bearing animals, as public and private waters are stocked with fish. The Federal Bureau of Fisheries and numerous State fish and game commissions, fish hatcheries, game farms, and game preserves have been established for the benefit of sportsmen and of those who handle and consume fish. The results of these movements for increasing the supply of game and fish certainly justify the adoption of similar means for multiplying fur-bearing animals, especially when the relative importance of fur and game, from the industrial and commercial point of view, is considered.

Objections are likely to be raised by poultry raisers and sportsmen against a proposition to increase the numbers of fur animals, several of which are more or less carnivorous. The poultryman's objection may be fairly met by the fact that he can use dead fowls as bait for these animals, and easily catch enough fur to pay for vermin-proof poultry yards. The abundance of both fur and game prior to the

advent of firearms and steel traps proves that fur animals are not fatally antagonistic to game.

SUMMARY.

Directly or indirectly, fur contributes to the support or comfort of a large proportion of our population. We import as much fur as we produce. In other words, we could sell at home twice as much fur as we are now producing—not to speak of the foreign demand.

The greater part of the fur grown in the United States comes from privately owned land. Landowners can increase and improve the fur taken on their property and make of it a regular source of income.

A few species of fur-bearing animals have been domesticated, but with the single exception of the silver fox, none are being farmed extensively enough to influence the fur market.

Laws protecting fur bearers are helpful; at present, however, they are not preventing the animals from decreasing in number. There would be better fur and, in the long run, more of it if the open season were not more than two months long.

From what is known of game preserves and bird sanctuaries and of the behavior of fur animals that have been confined or protected in parks, the most logical step to be taken in attempting to maintain a satisfactory fur supply is to set aside fur-animal preserves and stock them with the best animals that can be found, the animals to be fed, furnished with dens, and allowed full liberty. From such preserves choice breeding stock could be obtained for private use or for stocking other preserves. The territory surrounding such preserves would soon become the choicest trapping regions in the country.

CONCLUSION.

In order to make fur-bearing animals a constant source of profit it is necessary that stringent protective laws for their conservation be adopted and enforced. Such laws should be uniform in States having similar climatic conditions. The open season should be short, and limited within the period when skins are prime. The use of poison, smoke, gas, or fumes in taking fur-bearing animals should be prohibited. Trappers should be licensed at a nominal fee and required to report the number and value of their catch at the end of every trapping season—this information to be published annually for the enlightenment of the public.

It is suggested that State game commissions and State agricultural experiment stations promote the raising of fur bearers, especially foxes, skunks, and muskrats, which are being propagated with success; that they investigate methods of feeding these animals and combating their parasites; that they undertake the production of improved strains by selective breeding; and that they study the relations of fur animals in general to agriculture and their value as an asset to the State.



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